FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION
(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Trout Unlimited

B. Mailing Address: 111 N. Higgins Ave, Suite 500

C. City: Missoula State: MT Zip: 59802

Telephone: (406) 541-1194

D. Contact Person: Casey Hackathorn

Address if different from Applicant:

City: State: Zip:

Telephone:

E. Landowner and/or Lessee Name (if other than Applicant): David Zimmerman

Mailing Address: 176 Beatrice Lane

City: Clinton State: MT Zip: 59825

Telephone: 763-498-8894

II. PROJECT INFORMATION*

A. Project Name: Harvey Creek Native Trout Enhancement Project – Phase I

River, stream, or lake: Harvey Creek

Location: Township 11N Range 14W Section 29

County: Granite

B. Purpose of Project:

The purpose of the Harvey Creek Native Trout Enhancement Project is to improve native fish populations in Harvey Creek and the Clark Fork River. Phase 1 of the project will improve fish passage and eliminate entrainment of native fish in the uppermost irrigation ditch on Harvey Creek, while reducing sedimentation from maintenance of a rock push-up dam.

C. Brief Project Description:

Harvey Creek flows for 18 miles to its confluence with the Clark Fork River near Drummond, MT. Harvey Creek drains a 42 square mile basin in the John Long Mountains and has been identified by Montana Fish, Wildlife and Parks as a priority tributary for aquatic restoration. Harvey Creek is also designated by the U.S. Fish and Wildlife Service as Critical Bull Trout Habitat. The trout community in upper Harvey Creek is comprised exculsively of genetically pure bull trout and westslope cuthroat trout because of a barrier constructed by MT FWP at the outlet of a Granite County road culvert downstream.

Currently, there are eight irrigation diversions on Harvey Creek including seven ditches on the Harvey Creek Ranch. The remaining ditch is on the Weaver Ranch near the confluence with the Clark Fork River. Collectively, the irrigation ditches pose a major threat to native fish outmigration and instream flow on Harvey Creek. All of the ditches were sampled by TU and MT FWP during 2012, and fish entrainment including native westslope cutthroat and bull trout has been documented.

The Harvey Creek Native Trout Enhancement Project is a multi-year, collaborative effort to eliminate fish entrainment in all irrigation ditches on Harvey Creek, improve recruitment of native fish to the Clark Fork River, and improve fish passage and instream flow in Harvey Creek. This proposal is for Phase I (2013) of this project and will eliminate entrainment of native fish in the uppermost irrigation ditch on Harvey Creek by replacing a push-up irrigation diversion dam with a permanent rock cross vane diversion that provides year-round fish passage. The new diversion will include a headgate, flow measurement device, and fish screen. This irrigation structure is the uppermost diversion on the Harvey Creek Ranch and appears to pose the greatest risk to fish entrainment on the ranch. TU has worked with a qualified engineering firm to complete a cost estimate and conceptual design for the project and expects to complete final designs and implementation in 2013. In addition, TU will work with partners to complete riparian fencing on the Harvey Creek Ranch to protect over 2.5 miles of Harvey Creek.

Phase II (2013-2014) of the Harvey Creek Native Trout Enhancement Project will include evaluating and repairing the culvert and fish barrier at risk of failure after the county road was topped and damaged during spring runnoff in 2011 and completing designs for a siphon and fish screen at the irrigation diversion on the Weaver Ranch.

The third and final phase of the project will consolidate all seven diversions on the Harvey Creek Ranch to the uppermost point of diversion. Flood irrigation on the Harvey Creek will be upgraded in Phase III (2014-2015) to a gravity-fed piped sprinkler system. The irrigation effficiency improvements on the Harvey Creek Ranch will result in significant water savings protectable for instream flow. These future activities are being closely coordinated with the Montana Department of Natural Resources and Montana Natural Resource Damage Program

Ultimately, the Harvey Creek Native Trout Enhancement Project will provide recruitment of native fish and a cold, clean water source to a reach of the Clark Fork River that is currently suffering from chronic dewatering, elevated stream temperatures, and low numbers of native fish.

D. Length of stream or size of lake that will be treated: 2.5 miles

E. Project Budget:

Grant Request (Dollars): $ **17,726**

Contribution by Applicant (Dollars): $ 0 In-kind $ 0

(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ $ 34,727 In-kind $ 10,000
(attach verification - See page 2 budget template)

Total Project Cost: $ 62,453

F. Attach itemized (line item) budget – see template

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:
Bull trout, westslope cutthroat trout, slimy sculpin, longnose sucker, mountain whitefish, redside shiner and longnose dace.

B. How will the project protect or enhance wild fish habitat?:
The project will reduce sedimentation from a push up dam and reduce entrainment of native fish in an irrigation ditch that has documented entrainment of westslope cutthroat and bull trout.

C. Will the project improve fish populations and/or fishing? To what extent?:
The project seeks to improve fish populations in Harvey Creek and provide a steady recruitment source of native fish to the Clark Fork River.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:
The project will improve fishing opportunity for the public for wild fish on the Clark Fork River by improving mainstem fish populations in the adjacent reach. Fish populations and angling opportunity may be improved on public land upstream of the Harvey Creek Ranch on Harvey Creek as well.

E. If the project requires maintenance, what is your time commitment to this project?:
Trout Unlimited is commited to providing the landowner with technical assistance to maintain their fish screen. Furthmore, the Montana Natural Resource Damage Program has included funding for monitoring and long term maintenance in its long range plan for the Upper Clark Fork aquatic restoration activities. A landowner agreement will be developed to include maintenance of the fish screen.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:
Upper Harvey Creek is a very productive stream with high quality habitat. The lower 3 miles of Harvey Creek have been impaired by past agricultural activities include livestock grazing. The overall project includes plans for riparian fencing to improve instream habitat.

G. What public benefits will be realized from this project?:

The public will benefit from increased fish populations and quality of fishing on Harvey Creek and the adjacent reach of the Clark Fork River.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. There are only two water right holders on Harvey Creek and TU is currently working with each landowner.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No.

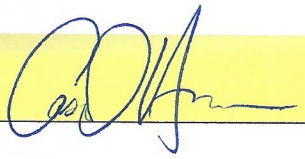
J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:  Date: 11/30/2012

Sponsor (if applicable):

***Highlighted boxes will automatically expand.**

Mail To:

Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 11/30/2012)

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FISHERIES REQUEST	IN-KIND SERVICES	IN-KIND CASH	TOTAL
Personnel								
Survey	1	day	$1,000.00	$ 1,000.00	500.00		500.00	$ 1,000.00
Design				$ -				$ -
Engineering	1	LS	$5,000.00	$ 5,000.00	2,500.00		2,500.00	$ 5,000.00
Permitting	8	HR	$40.00	$ 320.00	160.00		160.00	$ 320.00
Oversight	80	HR	$40.00	$ 3,200.00	1,600.00		1,600.00	$ 3,200.00
Labor				$ -				$ -
Post Project Monitoring	40	HR	$40.00	$ 1,600.00	800.00		800.00	$ 1,600.00
Travel								
Mileage	600	mile	$0.555	$333.00	166.00		167.00	$ 333.00
Per diem				$ -				$ -
Construction Materials								
Fish Screen and Headgate (Installed)	1	EA	$18,400.00	$ 18,400.00	9,200.00		9,200.00	$ 18,400.00
Diversion Dam (Installed)	1	LS	$5,000.00	$ 5,000.00	2,500.00		2,500.00	$ 5,000.00
Fencing (Installed)	12,000	FT	$2.25	$ 27,000.00		10,000.00	17,000.00	$ 27,000.00
Ramp Flume	1	EA	$600.00	$ 600.00	300.00		300.00	$ 600.00
				$ -				$ -
Equipment								
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
Mobilization								
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			TOTALS	$ 62,453.00	$ 17,726.00	$ 10,000.00	$ 34,727.00	$ 62,453.00

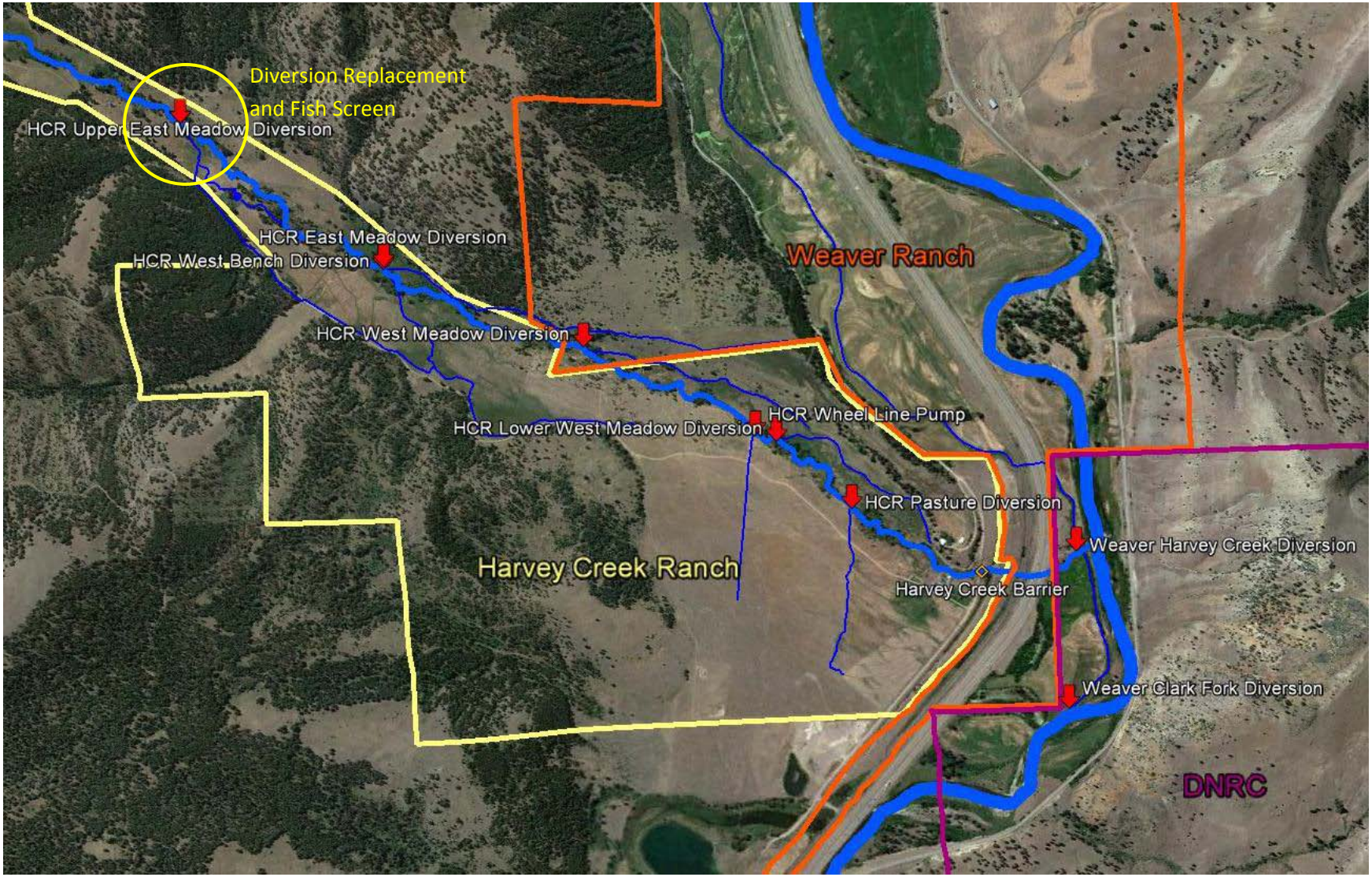
*Units = feet, hours, inches, lump sum, etc.

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS
(Revised 11/30/2012)

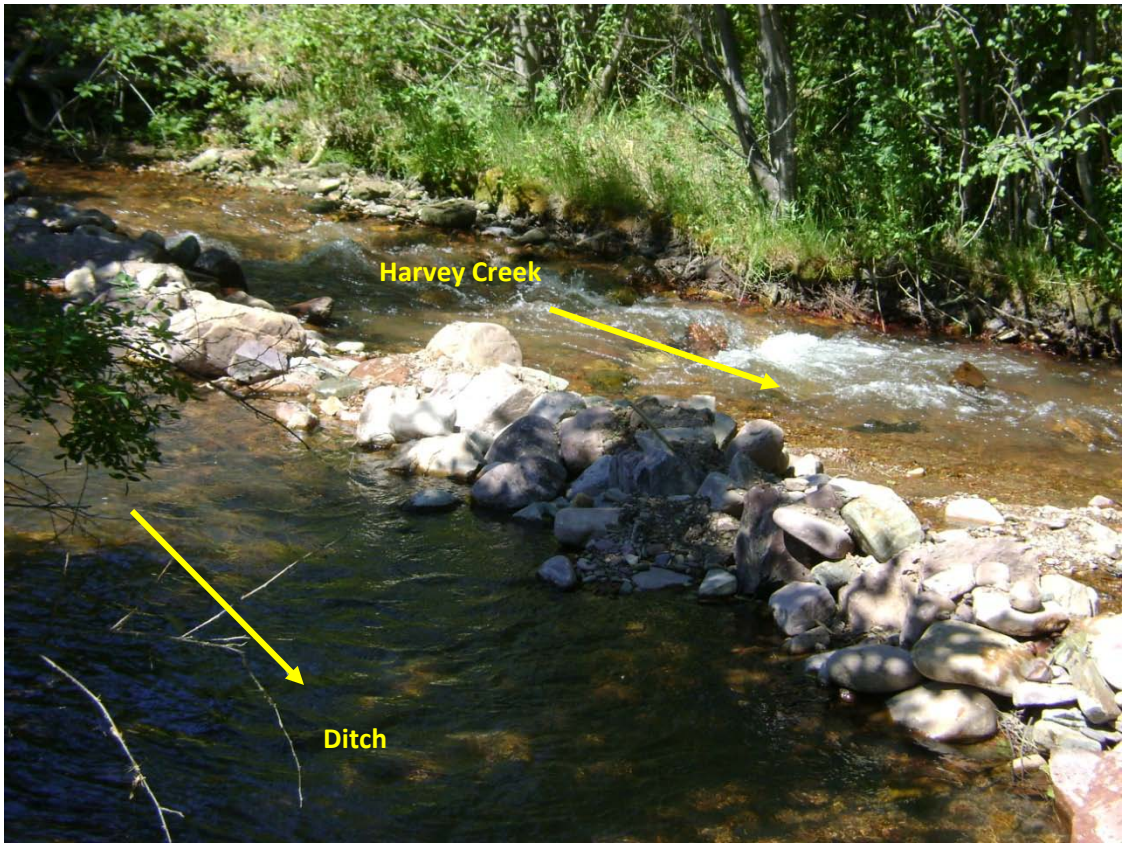
MATCHING CONTRIBUTIONS

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL
MT Natural Resource Damage Program	$ -	$ 25,227.00	$ 25,227.00
US Fish and Wildlife Service	$ -	$ 9,500.00	$ 9,500.00
Harvey Creek Ranch	$ 10,000.00	$ -	$ 10,000.00
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ -	$ -	$ -
TOTAL	**$ 10,000.00**	**$ 34,727.00**	**$ 44,727.00**

Harvey Creek Native Trout Enhancement Project Map

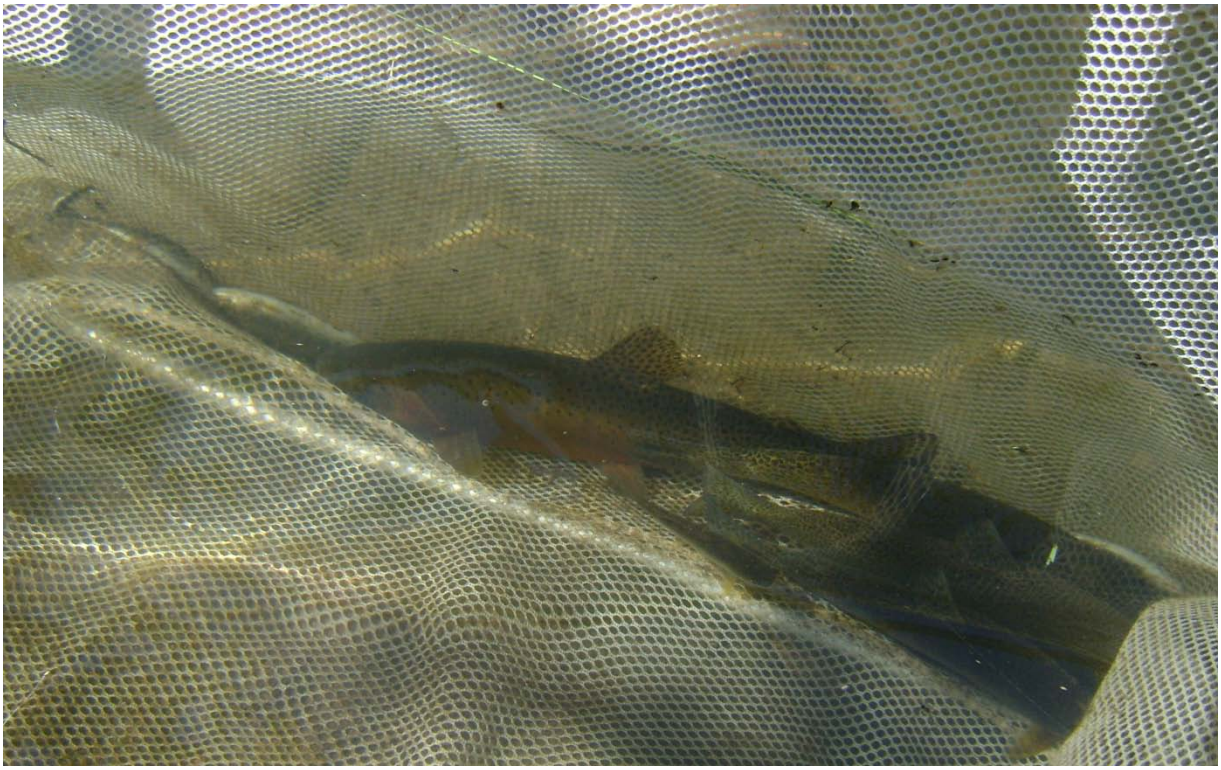


Existing Rock Push-Up Dam
Upper East Meadow Ditch, Harvey Creek Ranch, 7/25/2012



Example Rock Cross Vane Diversion
Sixmile Creek, MT

Westslope Cutthroat Trout, Harvey Creek
Above Harvey Creek Ranch, 7/8/2012



Westslope Cutthroat Trout, Sampled in Upper East Meadow Ditch
Harvey Creek Ranch, 7/25/2012

MORRISON MAIERLE, INC.
1 Engineering Place
Helena, Montana 59602
Ph: (406) 442-3050
Fax: (406) 442-6233

ENGINEER'S OPINION
OF PROBABLE COST*

Date: 6/11/2012
Project #: 4772.004
Project Name: Harvey Creek Fish Passage Project
Engineer: B. Burnett

FISH PROTECTION ALTERNATIVE 1b - Coanda Effect Screen (3.75 cfs)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Cost
101	Earthwork	15	C.Y.	$20	$300
102	Hydroscreen Coanda effect screen	1	LS	$2,500	$2,500
103	Screen Install	1	LS	$5,000	$5,000
104	Bypass Channel pipe	30	L.F.	$25	$750
105	Controllable Headgate/ Sediment sluice	1	LS	$1,000	$1,000
106	Site Grading	20	C.Y.	$10	$200
107	Site Restoration and Seeding	0.5	AC	$5,000.0	$2,500

CONSTRUCTION SUB-TOTAL		$12,300
CONTINGENCY	20%	$2,500
CONSTRUCTION TOTAL		**$14,800**
SURVEY	0.5%	$100
ENGINEERING DESIGN	10%	$1,500
PERMITTING	3%	$400
BIDDING	1%	$100
CONSTRUCTION ADMINISTRATION	10%	$1,500
PROJECT TOTAL		**$18,400**

* This draft estimate is for planning and informational use only and is not intended for bidding or construction.

3.2.2.9 Harvey Creek Watershed

Harvey Creek is a Priority 2 tributary to the Clark Fork River that drains forty two square miles south of Interstate 90. The channel flows for approximately eighteen miles from the John Long Mountains before it enters the Clark Fork River twenty miles east of Clinton, Montana. A native bull trout and westslope cutthroat trout population in the stream is isolated and protected by a grade control structure just upstream from the mouth of the creek that forms a permanent, year-round fish passage barrier.[9] The *2012 Process Plan* lists the following encouraged restoration activities (listed in order of priority) for Harvey Creek that, when implemented, will improve the fishery of Harvey Creek as well as the mainstem of the Clark Fork River.

Harvey Creek

1. Riparian Habitat: Riparian habitat improvement including riparian fencing/protection and woody shrub and tree planting, off-site watering; throughout drainage.

2. Land Conservation: Acquisition of or placement of conservation easements on private in-holdings adjacent to Harvey Creek.

3. Fish Entrainment: Reduction in fish entrainment at irrigation diversions via ditch screening and potentially the development of a siphon at the lowest diversion; primarily below county road.

4. Fish Passage: Fish passage improvement at lowest irrigation diversion (e.g., diversion redesign, retrofit – approximately 50 meters above mouth) and potentially selective passage of bull trout at barrier located just below county road crossing.

5. Water Quantity: Flow augmentation downstream of lowest diversion (approximately 50 meters above mouth) – may be necessary to provide adequate water for up- and downstream fish migration should fish entrainment or upstream passage be improved at this diversion (e.g., water right purchase or water lease).

Proposed Actions

Actions specific to Harvey Creek are set forth below, summarized in Table 3-7, and shown in Figure 3-8.

1. Riparian Habitat Protection and Enhancement Implementation: Further data collection and other information gathering will first be performed to determine specific types and location of the following actions: fencing riparian pastures and irrigation structure improvements. Additional fencing on the east side of Harvey Creek, outside the scope of this restoration plan, is underway and scheduled for 2012, funded by Future Fisheries and USFWS Partners in Wildlife.

[9] WRC-TU 2012, Upper Clark Fork Diversion Inventory.

2. Fish Entrainment: A fish screen and siphon will be installed at the main diversion structure located just upstream from the mouth where documented fish entrainment has been documented.[10] Detailed costs and designs have been developed for this fish screen and siphon project. Five other diversions have a potential for fish entrainment. Entrainment evaluations and data will be performed and screens or alternative water supplies developed for these diversions if warranted.

3. Fish Passage Improvement: Irrigation diversions and a road culvert are known fish passage barriers on Harvey Creek. Further data collection and evaluation of these structures will be performed. Designs to retrofit or replace the fish passage barriers will be completed along with an evaluation of responsibility for the road culvert.

4. Water Quantity: Flow needs for Harvey Creek will be addressed through the Flow Augmentation process set forth in Section 3.2.1.

These actions along and near Harvey Creek will have high net benefits in terms of accomplishing aquatic restoration goals and objectives, provide a cost effective implementation approach, and will be technically feasible to implement.

These actions were based on activities identified in the *2012 Process Plan*, taking into consideration the concept proposals submitted through the public scoping process. The concept proposals submitted by the public for Harvey Creek are set forth in abstract #55. The proposed actions for this watershed generally cover the concepts in this abstract. These concepts adequately focus on the factors within Harvey Creek that limit restoration of the Clark Fork River mainstem without a need for reliance on additional State-generated alternatives.

Costs

The costs to implement the Harvey Creek actions are estimated by combing the costs for the concept proposal, plus a 5% project management costs, and a 15% engineering and oversight cost. As costs for individual projects within the watershed are mostly conceptual at this time, funding for individual projects within the watershed will be based on cost-effectiveness and cost benefit, rather than concepts proposal estimates.

A total cost of $286,902 is preliminarily estimated to implement the proposed actions in the Harvey Creek.

Implementation Schedule

2013:

- Update cost estimates for design of irrigation diversion improvements for fish screen installation
- Evaluate replacement alternatives for Harvey Creek other diversions and culvert at Mullan Road

[10] Ibid

- Construct irrigation diversion replacements and install fish screens

2014 and Post 2014:

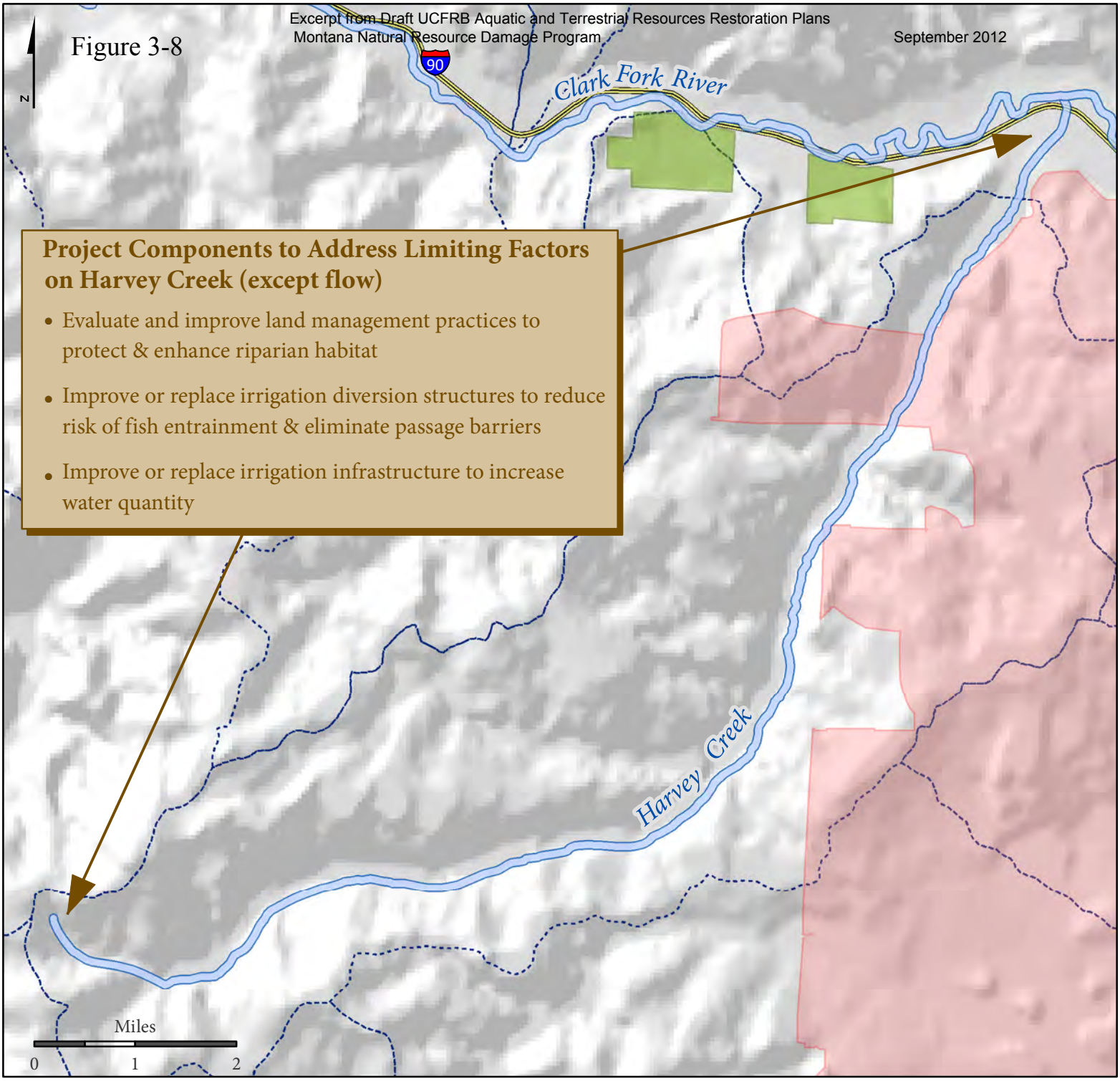
- Develop habitat protection and enhancement plans and implement riparian fencing
- Begin project monitoring and maintenance

Table 3-7. Relationship of restoration plan components to limiting factors and encouraged activities for Harvey Creek.

Limiting factor	Encouraged activities to address limiting factors	Objectives	Project components to address limiting factor	Data gaps and feasibility issues	Estimated Cost
Riparian Habitat	Riparian habitat improvement including riparian fencing.	Install TBD feet of riparian fencing.	Install riparian fencing on the west side of Harvey Creek.	Evaluate riparian areas near proposed irrigation diversion replacements to refine fence locations.	$7,600
Fish Entrainment	Reduction in fish entrainment at irrigation diversions via ditch screening and siphon installation.	Install TBD fish screens at irrigation diversions and build a siphon at the diversion near the mouth of Harvey Creek.	Install a fish screen and siphon at irrigation diversion near the mouth of Harvey Creek.	Evaluate existing entrainment structures. Completion of design.	$200,000
Fish passage	Fish passage improvement at select irrigation diversion and culvert (e.g., diversion redesign, retrofit).	Implement TBD irrigation diversions replacements or retrofits on Harvey Creek and replace culvert at Mullan Road to protect the upstream fish passage barrier.	Replace existing irrigation and culverts to protect the upstream fish barrier and preserve the native trout population.	Evaluate existing irrigation diversions and culvert for fish passage. Completion of designs.	$30,000
Water Quantity	Flow augmentation.	Increase instream flows by TBD cfs.	Augmentation of flows as set forth in Section 3.2.1.	Further analyses of flows as set forth in Section 3.2.1.	N/A
Data gaps and feasibility questions	Develop overall project work plan.	Complete integrated project work plans for each restoration component.	Fill data gaps and answer feasibility questions.	Described above for each restoration component.	$25,000
Engineering 15%					$35,640
Project Management 5%					$13,662
				Total	286,902

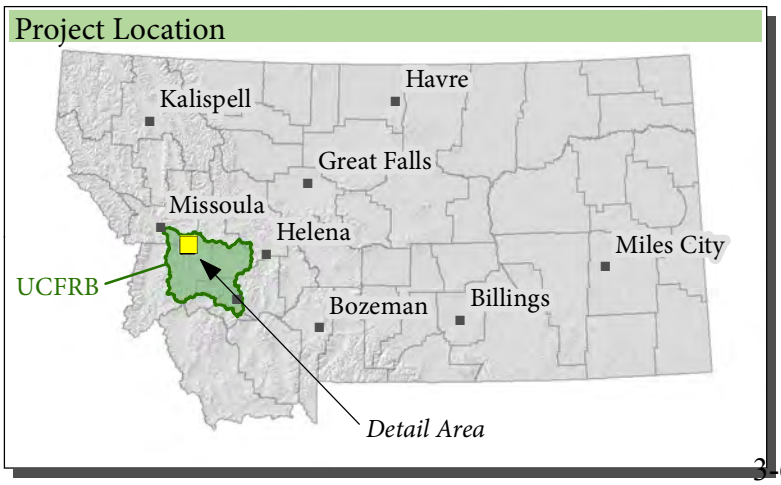
TBD: To Be Determined as part of the project work plan development.

Figure 3-8



Project Components to Address Limiting Factors on Harvey Creek (except flow)

- Evaluate and improve land management practices to protect & enhance riparian habitat
- Improve or replace irrigation diversion structures to reduce risk of fish entrainment & eliminate passage barriers
- Improve or replace irrigation infrastructure to increase water quantity

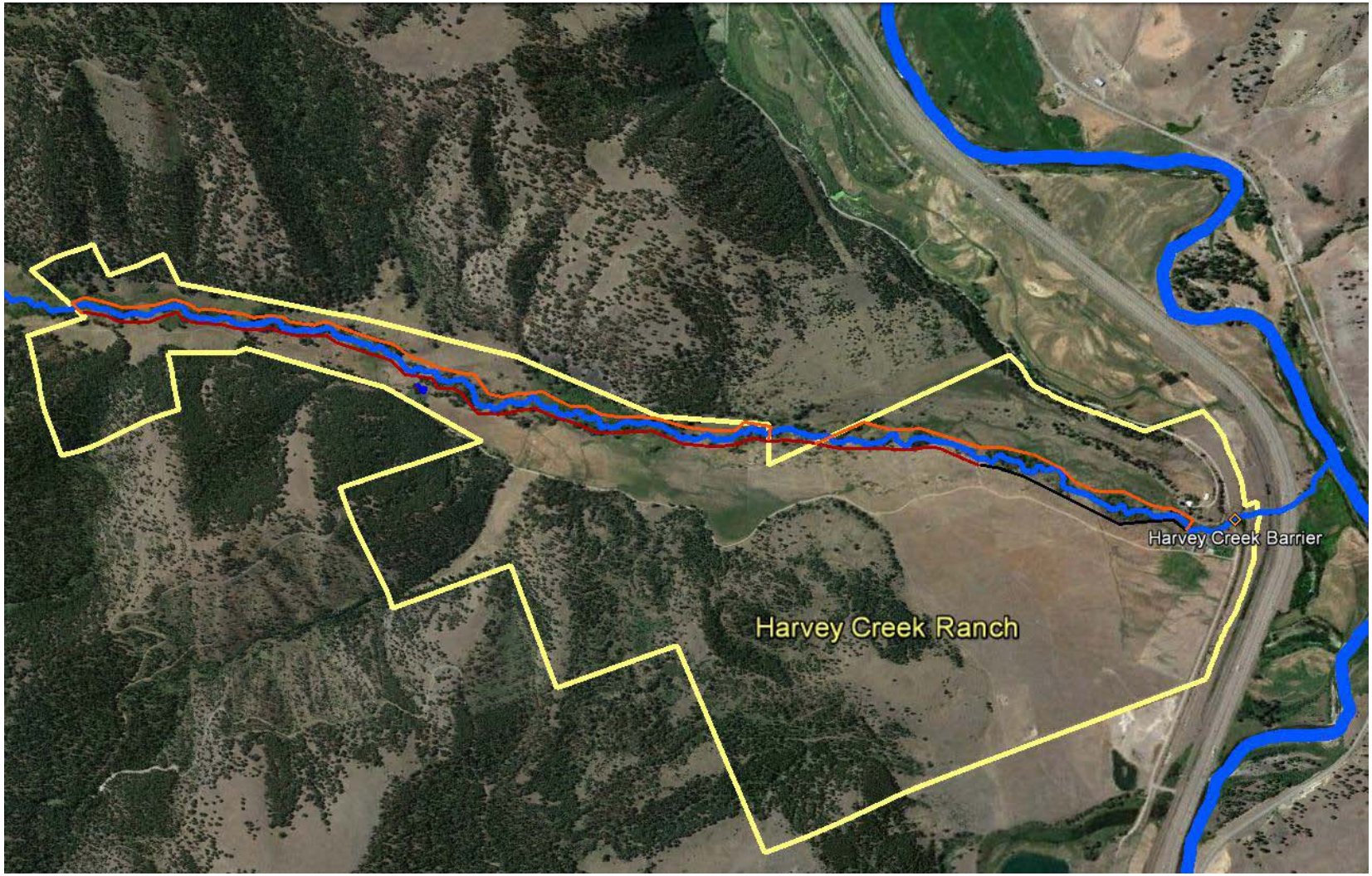


NRD Restoration Priority Areas

- Priority 1 Stream Area
- Priority 2 Stream Area
- Priority 1 Terrestrial Area
- Priority 2 Terrestrial Area
- Conservation Easement
- Subwatershed Boundary

Harvey Creek Native Trout Enhancement Project

Riparian Fencing Map



Proposed 2013 Fencing	
Fencing Installed 2011-2012	
Existing Ranch Fence	

Montana Fish, Wildlife & Parks

72 Rock Creek Road
Clinton, MT 59825
November 30, 2012

Montana Fish, Wildlife and Parks
Attn: Mark Lere
1420 East 6th Ave.
Helena, MT 59620

Future Fisheries Panel:

This memo represents a letter of support for the Harvey Creek fish screen and diversion reconstruction project on the Harvey Creek Ranch submitted by Trout Unlimited. Harvey Creek in this reach is a unique fishery. Trout species found in this portion of the drainage consists solely of native bull and westslope cutthroat trout. Native species in this reach are protected from invasion by non-native trout by a large fish passage barrier located just above the mouth of Harvey Creek. Pure westslope cutthroat trout are also abundant in this reach and protected from hybridization with rainbow trout. Very few streams in western Montana contain both bull and westslope cutthroat trout and are protected from invasion by non-native species thus, Harvey Creek is considered a very high priority regional fishery by Montana Fish, Wildlife and Parks.

As submitted, this project will reduce entrainment of native fish species and also provide better passage for fish making seasonal migrations through this reach. Montana Fish, Wildlife and Parks collected data in 2012 which demonstrates that a substantial amount of westslope cutthroat trout entrainment is occurring at this diversion. In addition, this project will also facilitate developing future projects aimed at improving irrigation efficiency and further reducing fish entrainment in the system. The ultimate goal of improving irrigation efficiency is an improvement of in-stream flows in Harvey Creek.

Thank you for considering funding this project and feel free to contact me regarding any questions you might have on this project.

Sincerely,

Brad Liermann, Fisheries Management Biologist
(406)825-5225

To the MTFWP, Future Fisheries Program,

We are writing to you to express support for proposed fishery improvements in the Harvey Creek tributary. Harvey Creek is a very unique stream that is populated with native trout, and the stream can be an great source of native fish for the Clarks Fork River, along with proving excellent fishing within its own boundaries.

Because of a fish barrier near the mouth of Harvey Creek, the Harvey Creek drainage is home to Bull Trout and Western Cutthroat, and fish from the Clarks Fork are unable to migrate up into the Harvey Creek Drainage. During the last year our ranch constructed nearly two miles of riparian fencing along the East side of Harvey Creek, within our boundaries. We are hopeful with your assistance that we would be able to fence the western side of Harvey Creek within our ranch. This proposed project) is a very significantly warranted action. Without fencing on the west side OF Harvey Creek (and essentially creating an enclosed corridor), cattle are able to access the creek drainage from the west side, and consequently limit the magnitude of improvement which can be obtained with fencing only the Eastern side of the drainage as we have done. Both the neighboring ranch and Harvey Creek ranch have grazing pastures along the west side. There is a large magnitude of various fencelines along the west side, that all are in fair to poor condition. By erecting the riparian fencing along the west side of the creek, we could obtain a quick and strong deterrent for cattle in various pastures, from reaching the riparian areas.

This last summer we were using a complex flood irrigation system at Harvey Creek Ranch. We saw a lot of fish end up in our ditches, and we saw a significant lack of efficient with the flood irrigation. Thus we are in full support of Trout Unlimited's proposal to install a head gate and fish screen on our one major ditch that we use the most. We feel this would be a crucial first step in making significant improvements to the irrigation system, and we are also in full support of this proposal.

A change in our ranch management 18 months ago, has created a dedicated goal to be the best land stewards we can be, from the perspective of all our natural resources, and we are working to meet those goals every day. Our funding is unfortunately limited, and thus we deeply appreciate the help you have shown us, and hope we can work together more, to strengthen the integrity of the Harvey Creek ecosystem.

Respectfully,

Roger Fithian Harvey Creek Manager

Roger Fithian

David Zimmerman Ranch Owner

David Zimmerman

Casey Hackathorn

From: Brewer, Dan [dan_brewer@fws.gov]
Sent: Friday, November 30, 2012 1:42 PM
To: Casey Hackathorn
Subject: Re: Draft FF Application

Casey, I have reviewed and fully support the Harvey Creek Native Trout Enhancement Project – Phase I. Improving habitat conditions and reducing fish entrainment is a key component for recovering this local population of bull trout. Recovery of bull trout will require reducing threats to the long-term persistence of populations, maintaining multiple interconnected populations of bull trout across the diverse habitats, and preserving the diversity of bull trout life-history strategies (*e.g.*, resident or migratory forms, emigration age, spawning frequency, local habitat adaptations)(U.S. Fish and Wildlife Service 2002a p. 5). Harvey Creek was designated as critical habitat because it is one of three water bodies that is currently occupied by bull trout and provides spawning and rearing habitat for an important a migratory population of bull trout in the Upper Clark Fork River Core Area (U.S. Fish and Wildlife Service 2009). Your proposal would address several of the primary threats defined in the Recovery Plan (draft) (i.e. Provide Fish Passage Around Diversions, and Protect, restore, and maintain suitable habitat conditions for bull trout) (U.S. Fish and Wildlife Service 2002). Your proposal is an important step for reducing the long-term threats to bull trout in Harvey Creek. I appreciate your efforts and look forward to the implementation of the additional phases.

Sincerely

Dan Brewer

U.S. Fish and Wildlife Service

585 Shepard Way

Helena, MT 59601

Phone: Helena 406 449 5225 ext 216

Missoula 406 329 3951

On Fri, Nov 30, 2012 at 11:16 AM, Casey Hackathorn <CHackathorn@tu.org> wrote:

Casey Hackathorn | Upper Clark Fork Coordinator